

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of delivering ultrasound signals using shear waves, the method comprising applying ~~a portion~~ first longitudinal waves of at least a first ultrasound beam to a subject at at least a first incident angle relative to ~~the~~ a first surface of the subject ~~to induce~~ such that the first longitudinal waves are converted to first shear waves in the subject and are converted to second longitudinal waves at a second surface of the subject, energy in the ~~shear~~ second longitudinal waves forming a substantial part of energy of ~~first~~ ultrasound waves at a desired region in the subject at a therapeutic level.
2. (Currently Amended) The method of claim 1 wherein ~~the portion of the first longitudinal waves are~~ ultrasound mainbeam is applied to a surface of the subject between a longitudinal wave critical angle associated with the subject and a shear wave critical angle associated with the subject.
3. (Currently Amended) The method of claim 1 wherein applying the first longitudinal waves ~~portion of at least a first ultrasound beam~~ comprises applying ultrasound energy at multiple incident angles between the longitudinal wave critical angle associated with the subject and the shear wave critical angle associated with the subject to focus ultrasound energy in the desired region.
4. (Canceled)
5. (Currently Amended) The method of claim 1 wherein applying the first longitudinal waves ~~portion of at least a first ultrasound beam~~ comprises applying the first longitudinal waves ~~portion of at least a first ultrasound beam~~ to bone.

6. (Currently Amended) The method of claim 5 wherein the bone is a skull, and wherein the ~~portion of the first ultrasound beam is~~ first longitudinal waves directed at the skull at the at least a first incident angle in order to reach the desired region within the skull.

7. (Currently Amended) The method of claim 1 wherein the ~~portion of at least a first ultrasound beam is~~ first longitudinal waves are applied in multiple bursts of different frequencies.

8. (Original) The method of claim 7 wherein the different frequencies are within a range of frequencies from about 0.1MHz and about 5MHz.

9. (Original) The method of claim 7 wherein the different frequencies are within a range of frequencies from about 0.2MHz and about 3MHz.

10. (Original) The method of claim 7 wherein the pulses have durations within a range of about 1 cycle to continuous wave.

11. (Currently Amended) The method of claim 1 wherein applying the ~~portion of at least a first ultrasound beam~~ first longitudinal waves comprises applying a ~~portion of a third ultrasound beam~~ third longitudinal waves to the subject to produce second shear waves in the subject to produce ~~third ultrasound shear~~ fourth longitudinal waves in the desired region.

12. (Currently Amended) The method of claim 11 wherein the ~~portion of the third ultrasound beam is~~ third longitudinal waves are separate from the first longitudinal waves ~~portion of the first ultrasound beam~~.

13. (Currently Amended) The method of claim 1 wherein applying the ~~portion of at least a first ultrasound beam~~ first longitudinal waves comprises applying a ~~portion of a fourth ultrasound beam~~ fifth longitudinal waves to the subject at a ~~fourth~~ second incident angle that is less than the longitudinal wave critical angle associated with the subject.

14. (Currently Amended) A system for delivering ultrasound signals to a target region in a subject using shear waves, the system comprising:
a source configured to transmit ultrasound energy; and
directing means, coupled to the source, for causing ~~a portion~~ at least a ~~first mainbeam~~ first longitudinal waves of the transmitted ultrasound energy to be incident upon a surface of the subject ~~to induce the first longitudinal waves are converted to first shear waves in the subject and are converted to second longitudinal waves at a second surface of the subject~~, energy in the shear waves second longitudinal waves forming a substantial part of energy of ~~first~~ ultrasound waves at the target region in the subject at a therapeutic level.

15. (Currently Amended) The system of claim 14 wherein the directing means is configured to direct the first ~~mainbeam~~ longitudinal waves at the surface of the subject at a first angle between a longitudinal critical angle associated with the subject and a shear critical angle associated with the subject.

16. (Currently Amended) The system of claim 15 wherein the directing means comprises at least one of (1) a positioner configured to mechanically direct a normal direction associated with the source toward the surface at the first angle, and (2) a phase/delay adjuster, wherein the source comprises a plurality of radiating elements, the phase/delay adjuster being configured to regulate at least one of phases and delays of the plurality of radiating elements to electronically steer at least the first longitudinal waves ~~mainbeam~~.

17. (Original) The system of claim 16 wherein the positioner is configured to at least one of (1) couple to the subject and the source in a fixed manner such that the normal is directed toward the surface at the first angle, and (2) mechanically adjust the source such that the normal is directed toward the surface at the first angle.

18. (Original) The system of claim 16 wherein the source comprises a plurality of elements configured to radiate ultrasound energy, the system comprising a controller configured and coupled to cause at least a portion of the source to emit ultrasound energy, to process indicia of reflected energy due to the emitted energy to determine an orientation of at least a portion of

the surface relative to the source, and to actuate only elements of the source that have their mainbeams at least partially directed at the portion of the surface between the longitudinal critical angle and the shear wave critical angle.

19. (Canceled)

20. (Currently Amended) The system of claim 15 comprising a controller coupled to the source and configured to actuate the source to produce the first longitudinal waves mainbeam and ~~a second mainbeam at least a portion of which would be~~ third longitudinal waves incident upon a surface of the subject at a second angle between the longitudinal critical angle associated with the subject and the shear critical angle associated with the subject such that ultrasound energy in the ~~second mainbeam from the source~~ third longitudinal waves will induce second shear waves in the subject ~~and energy from the second mainbeam that will be converted to fourth longitudinal waves that~~ will reach target region, wherein the second angle is different from the first angle.

21. (Currently Amended) The system of claim 14 comprising a controller coupled to the source and configured to actuate the source to produce the first longitudinal waves mainbeam for transmitting energy to the target region.

22. (Currently Amended) The system of claim 14 comprising a controller coupled to the source and configured to actuate the source to produce the first longitudinal waves mainbeam in a plurality of pulses with different frequencies.

23. (Original) The system of claim 22 wherein the different frequencies are within a range of frequencies from about 0.1MHz and about 5MHz.

24. (Original) The system of claim 23 wherein the different frequencies are within a range of frequencies from about 0.2MHz and about 3MHz.

25. (Original) The system of claim 22 wherein the pulses have durations within a range of about 1 cycle to continuous wave.

26. (Currently Amended) The system of claim 14 comprising a controller coupled to the source and configured to actuate the source to produce the first longitudinal waves mainbeam and ~~a third mainbeam at least a portion of which would be~~ fifth longitudinal waves incident upon a surface of the subject at a third angle that is less than the longitudinal critical angle associated with the subject.

27. (Currently Amended) A system for delivering ultrasound signals to a target region in a subject using shear waves, the system comprising:

a source configured to transmit ultrasound energy;

a controller coupled to the source and configured to actuate the source to transmit ultrasound energy toward the subject; and

a positioning device coupled to the source and configured to ensure that ~~a portion~~ first longitudinal waves of a first mainbeam from at least a portion of the source is directed at a portion of a first surface of the subject at a first angle between a longitudinal critical angle associated with the subject and a shear critical angle associated with the subject such that ~~ultrasound energy in the first mainbeam will induce~~ the first longitudinal waves are converted to shear waves in the subject and are converted to second longitudinal waves at a second surface of the subject and energy from the ~~transmitted ultrasound~~ second longitudinal waves will reach the target region;

wherein the controller is configured to cause the source to transmit energy in a plurality of pulses, with each pulse having a different frequency.

28. (Currently Amended) The system of claim 27 wherein the source comprises a plurality of elements configured to transmit ultrasound energy, and wherein the controller is configured to inhibit actuation of at least one of (1) a portion of the source configured to produce a second mainbeam at least a portion of which would be incident upon the portion of the first surface of the subject at a second angle that is less than the longitudinal critical angle, and (2) a portion of the source configured to produce a third mainbeam at least a portion of which would

be incident upon the portion of the first surface of the subject at a third angle that is greater than the shear wave critical angle.

29. (Original) The system of claim 27 wherein the different frequencies are within a range of frequencies from about 0.1MHz and about 5MHz.

30. (Original) The system of claim 29 wherein the different frequencies are within a range of frequencies from about 0.2MHz and about 3MHz.

31. (Original) The system of claim 29 wherein the pulses have durations within a range of about 1 cycle to continuous wave.

32. (Original) The system of claim 27 wherein the positioning device is configured to couple to the subject to mechanically orient the source relative to the subject as desired.

33. (Original) The system of claim 27 wherein the source comprises a plurality of elements configured to transmit ultrasound energy, and wherein the positioning device is configured to affect phases of the elements to electronically steer the first mainbeam.